MEL-001 – Science Laboratories Infrastructure Project, Various Locations

(Changes from FY 2005 Congressional Budget Request are denoted with a vertical line in the left margin.)

1. Construction Schedule History

Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		

N/A — See subproject details

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Project Engineering & Design (PED)			
Prior Years	6,496[a]	6,496	4,037
FY 2004	2,974[b]	2,974	4,245
FY 2005	4,960	4,960	3,188
FY 2006	3,000	3,000	3,960
FY 2007	0	0	2,000
Construction			
Prior Years	11,057	11,057	8,212
FY 2004	29,771	29,771	25,682
FY 2005	19,236	19,236	15,793
FY 2006	12,869	12,869	13,651
FY 2007	6,141	6,141	8,500
FY 2008	0	0	7,236

[a] Title I and Title II Design funding of $803,000 (Subproject 17); $880,000 (Subproject 18); $1,500,000 (Subproject 25); requested under PED Project No. 02-SC-001, and $1,679,000 (Subproject 27); $1,089,000 (Subproject 28); $545,000 (Subproject 33) requested under PED Project No. 03-SC-001.

[b] Title I and Title II Design funding of $1,988,000 requested under PED Project No. 04-SC-001 and $986,000 redirected from MEL-001-018 to initiate PED on MEL-001-046, Capability Replacement Laboratory at PNNL.

3. Project Description, Justification and Scope

MEL-001 subprojects are typical conventional construction and as such can be engineered, designed, and ready for construction contract award within one fiscal year, or in the following fiscal year. Accordingly, these subprojects are submitted with both PED and construction funding identified. In most cases these subprojects proceed (after normal reviews and approvals) directly from design into construction with no delay. DOE's December 2000 Report to Congress "The US DOE Implementation Procedures for the Use of External Independent Reviews and Project Engineering and Design Funds" allows this approach under the Section "Simplified Process for a Design-Procure-Build or Design-Build Project", pages 15 to 18. The full report can be found at the following web site: *http://www.sc.doe.gov/sc-80/sc-82/docs.html*

This project funds two types of subprojects:

- Subprojects that renovate or replace inefficient and unreliable general purpose facilities (GPF) including general use, service, and user support facilities such as administrative space, cafeterias, utility systems, and roads; and
- Subprojects to correct Environment, Safety, and Health (ES&H) deficiencies including deteriorated steam lines, environmental insult, fire safety improvements, sanitary system upgrades, and electrical system replacements.

They are grouped by these categories below:

General Purpose Facilities Projects:

a. Subproject 18 – Laboratory Systems Upgrades (PNNL)

TEC	Prev.	FY 2004	FY 2005	FY 2006	Outyear	Construction Start/ Completion Dates
880 [a]	880 [ab]	1 [b]	0 [b]	0	0	Subproject Cancelled [b]

Subproject cancelled.

b. Subproject 25 – Research Support Center (ORNL)

TEC	Prev.	FY 2004	FY 2005	FY 2006	Outyear	Construction Start/ Completion Dates
16,041	6,441 [c]	9,600	0	0	0	2Q 2003 – 1Q 2005

[a] Title I and Title II Design funding of $880,000 provided under PED Project No. 02-SC-001.
[b] Project cancelled. The buildings that were to be rehabilitated under this project will be removed under the Office of Environmental Management funded River Corridor Clean-up project at the Hanford Site. FY 2003 unobligated balances of $3,950,000 and $2,141,000 of FY 2004 construction funds were reflected in the FY 2005 President's Request as being redirected in FY 2004 as follows: $5,105,000 to complete CEBAF Center Addition subproject MEL-001-33 and $986,000 to Research Support Building MEL-001-27. The redirection of $5,105,000 to MEL-001-33 has been approved. The $986,000 prior year balance has been redirected to initiate PED on subproject MEL-001-046, Capability Replacement Laboratory at PNNL.
[c] Title I and Title II Design funding of $1,500,000 provided under PED Project No. 02-SC-001.

This subproject will construct a 50,000 sq. ft. facility to house the core support service facilities and serve as the cornerstone and focal point of the East Research Campus envisioned in the ORNL Facility Revitalization Project. This building will include an auditorium and conference center (currently there is no adequate auditorium/conference space available at ORNL), cafeteria, visitor reception and control area, and offices for support staff. It will facilitate consolidation of functions, which are presently scattered throughout the Laboratory complex in facilities that are old (30-50 years), undersized, poorly located, or scheduled for surplus. The facility will serve as a modern center for meeting, collaborating, and exchanging scientific ideas for ORNL staff and nearly 30,000 visitors, guests, and collaborators that use ORNL facilities each year. The new cafeteria will replace the existing cafeteria, which was constructed in 1953. The existing cafeteria is poorly located to serve the current staff and is adjacent to the original production area of the laboratory now undergoing decontamination. The estimated simple payback is 7 years.

c. Subproject 27 – Research Support Building, Phase I (BNL)

TEC	Prev.	FY 2004	FY 2005	FY 2006	Outyear	Construction Start/ Completion Dates
18,200	3,206 [a]	4,985	6,363	3,646	0	2Q 2005 – 3Q 2007

This 65,000 sq. ft. facility is intended to consolidate Staff Services, Public Affairs, Human Resources, Credit Union, Library and other support functions in a central quadrangle to provide staff and visiting scientists with convenient and efficient support. This facility, the first of four phases in the BNL Master Revitalization Plan, will include a lobby with a visitor information center to assist visiting scientists, and a coordinated office layout of related support services. After completion of this subproject, 16,400 sq. ft. of World War II era structures will be torn down. Based on total life-cycle costs, productivity gains, avoided energy and maintenance costs, the Research Support Building will provide a return on investment of 10% and a simple payback of 8.4 years.

[a] Title I and Title II Design funding of $1,679,000 requested under PED Project No. 03-SC-001.

d. Subproject 28 – Building 77 Rehabilitation of Structures and Systems, Phase II (LBNL)

TEC	Prev.	FY 2004	FY 2005	FY 2006	Outyear	Construction Start/ Completion Dates
13,360	1,735 [a]	2,000	5,845	3,780	0	3Q 2005 – 2Q 2007

This subproject will provide for rehabilitation to correct mechanical, electrical and architectural deficiencies in Buildings 77 (a 39 year old, 68,000 sq. ft. high-bay industrial facility) and 77A (a 14 year old, 10,000 sq. ft. industrial facility). Both buildings house machine shop and assembly operations in which production of highly sophisticated research components for a variety of DOE research projects is performed. Current work includes precision machining, fabrication and assembly of components for the Advanced Light Source, the Dual-Axis Radiographic Hydrodynamic Test Facility (DAHRT) project, the Spallation Neutron Source, and the ATLAS Detector. Infrastructure systems installed by this subproject will include HVAC, power distribution, lighting, and noise absorption materials. The improvements are necessary to satisfy urgent demands for high levels of cleanliness, temperature and humidity control, and OSHA and reliability requirements. This is the second of two subprojects; the first subproject, funded in FY 1999 and completed in FY 2002, corrected structural deficiencies in Bldg. 77.

e. Subproject 33 – Continuous Electron Beam Accelerator Facility (CEBAF) Center Addition, Phase I (TJNAF)

TEC	Prev.	FY 2004	FY 2005	FY 2006	Outyear	Construction Start/ Completion Dates
10,500	1,481 [b]	9,019 [c]	0	0	0 [c]	4Q2004-3Q2007

This subproject is Phase I of three phases to provide for additions to the CEBAF Center office building. The purpose of the three phases is to provide additional critical computer center space and to eliminate off-site leases and existing trailers to collocate staff for enhanced productivity. This first addition will add 59,000 sq. ft. of computer center (7,600 sq. ft.) and office space, and eliminate 22,000 sq. ft. of aging trailers with a 7.4-year simple payback and a 10% rate of return. Phase I will provide additional space for 182 users and 50 staff personnel.

[a] Title I and Title II Design funding of $1,089,000 provided under PED Project No. 03-SC-001.
[b] Title I and Title II Design funding of $545,000 provided under PED Project No. 03-SC-001.
[c] Unobligated funds in the amount of $5,105,000 were reflected in the FY 2005 President's Request as being redirected from the cancelled Subproject 18 – Laboratory Systems Upgrades (PNNL). The proposed redirection was approved.

ES&H Subprojects:

a. Subproject 17 – Mechanical and Control Systems Upgrade, Phase I (ANL-E)

TEC	Prev.	FY 2004	FY 2005	FY 2006	Outyear	Construction Start/ Completion Dates
8,962	3,810 [a]	5,152	0	0	0	3Q 2003 – 3Q 2005

This subproject will upgrade and replace 30-40 year old mechanical system components in various facilities. It will optimize capacity, enhance system reliability and performance, improve safety, and reduce maintenance and repair costs of primary building mechanical equipment and control systems. The mechanical systems designated for replacement are no longer adequate, reliable, or efficient, and do not meet current ES&H standards (i.e. failure of laboratory exhaust systems could lead to the release of radioactive material). Specifically, this subproject will: upgrade HVAC systems in Buildings 221 and 362, including heating and cooling coils, fans, filter systems, ductwork, controls, and variable frequency drive fans; upgrade lab exhaust systems in Buildings 202 and 306, including new fans, ductwork, and controls; upgrade corroded drainage systems in Buildings 200, 205 and 350; and upgrade steam and condensate return systems in 12 facilities in the 360 area. This will include high and low pressure steam supply piping and associated pressure reducing stations, valves, and accessories; and replacing condensate pumping systems including piping, valves and system controls.

b. Subproject 36 – Safety and Operational Reliability Improvements (SLAC)

TEC	Prev.	FY 2004	FY 2005	FY 2006	Outyear	Construction Start/ Completion Dates
15,600	0	1,988 [b]	2,028 [c]	5,443	6,141	4Q 2005 – 1Q 2008

This subproject has two components:

- Underground Utility Upgrades - this component will replace deteriorated sections of cooling water, low conductivity water, drainage, natural gas, compressed air and fire protection which are critical to the operation of the linear accelerator and the B-Factory rings which produce the essential collisions needed for the Parity Violation studies (one of the pillars of the current US High Energy Physics program also carried out competitively at KEK in Japan). There have been five pipe failures over the last two years and the failure rate is expected to increase in these 35 year-old systems as they continue to age. When the pipes fail, research is slowed or halted until repairs are completed.
- Seismic Upgrades – this component will install seismic upgrades necessary to bring various building structures into compliance with the seismic standards of the Uniform Building Code. The seismic hazard in the Bay Area is high. 19 “essential” facilities, i.e., those that will minimize

[a] Title I and Title II Design funding of $803,000 provided under PED Project No. 02-SC-001.
[b] Title I and Title II Design funding of $1,988,000 provided under PED Project No. 04-SC-001.
[c] Conference Report language redirected $5,000,000 from this subproject to the High Energy Physics (HEP) research program at SLAC. The funds are held for a possible reprogramming to HEP.

the time required for the Laboratory to recover from an earthquake, will be retrofitted for a total of 229,000 sq. ft.

Payback is 11.2 years for the entire subproject.

	FY 2004	FY 2005	FY 2006
Reserve	--	5,000	--

Conference report language accompanying the FY 2005 appropriation indicated that $5,000,000 would be redirected from SLI construction funds at the Stanford Linear Accelerator Center (SLAC) MEL-001 subproject 36 to the High Energy Physics program for the research program at SLAC. Accordingly, $5,000,000 is held for possible reprogramming in FY 2005 with funding for the SLAC project in the MEL-001 project data sheet reduced.

4. Details of Cost Estimate

N/A

5. Method of Performance

To the extent feasible, construction and procurement will be accomplished by fixed-price contracts awarded on the basis of competitive bids.

6. Schedule of Project Funding

N/A

7. Related Annual Funding Requirements

N/A